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**Abstract:** The Earth is surrounded by a blanket of air, called the atmosphere. The atmosphere is a thin layer of gases that envelope the Earth. The gases are held close to the earth by gravity and the thermal movement of air molecules. Life on Earth is supported by the atmosphere, solar energy, and the magnetic fields. Five layers have been identified in the atmosphere, using thermal characteristics, chemical composition, movement, and density. The atmosphere is divided into the troposphere, the stratosphere, the mesosphere, the thermosphere, and the exosphere. The thermosphere, from the Greek word (thermos) for heat, is the fourth atmospheric layer from Earth, separated from the mesosphere by the mesopause. It begins about 50 mi. (80 km.) above the Earth and is the layer of the atmosphere directly above the mesosphere and below the exosphere. The lower part of the thermosphere, from 50 to 342 mi. (80 to 550 km.) above the Earth's surface, contains the ionosphere, which is the region of the atmosphere that is filled with charged particles. Beyond the ionosphere, extending out to perhaps 6,214 mi. (10,000 km.), is the exosphere.